

CLAIMS AMENDMENTS

The below-listing of claims replaces all prior versions, and listings, of claims in the application. Compared to prior versions, claims 1, 6, 13, and 14 are amended. Claims 4, 11, and 20 are canceled without prejudice.

Listing of Claims:

Claim 1 (currently amended): A method for improving the nutritional quality of a fibrous by-product or residue of a food manufacturing process, comprising:

inoculating the fibrous by-product or residue with at least one filamentous fungus;
and

fermenting the fibrous by-product or residue;
whereby a dry matter content of the by-product or residue decreases by from about 7% to about 12%, a protein content of the by-product or residue increases by from about 10% to about 15%, and a fat content of the by-product or residue decreases by from about 40% to about 50%.

2 (original). The method of Claim 1, wherein the filamentous fungus is selected from the group consisting of Rhizopus, Aspergillus, Trichoderma, and any combination thereof.

3 (original). The method of Claim 1, wherein the fibrous by-product or residue is selected from the group consisting of spent brewer's grains, dried distiller's grains, dried distiller's solubles, distiller's dried grains with solubles, residues of the cereal processing industry, wheat bran, soybean hulls, citrus pulp, beet pulp, rice husks or hulls, bagasse, apple pommace, and mixtures thereof.

4 (canceled).

5 (original). The method of Claim 1, wherein fermentation is a solid-state fermentation using the fibrous byproduct or residue as a substrate for growth of the filamentous fungus.

6 (currently amended). A method for producing an animal feed and an enzyme-based animal feed supplement from a fibrous by-product or residue of a food manufacturing process, comprising:

inoculating the fibrous by-product or residue with at least one filamentous fungus;
fermenting the fibrous by-product or residue whereby a dry matter content of the by-product or residue decreases by from about 7% to about 12%, a protein content of the by-product or residue increases by from about 10% to about 15%, and a fat content of the by-product or residue decreases by from about 40% to about 50%;

separating at least one enzyme from the fermented fibrous by-product or residue; and
providing the fermented fibrous by-product or residue and optionally the separated enzyme to an animal as a feed or feed supplement.

7 (original). The method of Claim 6, wherein the fibrous by-product or residue is selected from the group consisting of spent brewer's grains, dried distiller's grains, dried distiller's solubles, distiller's dried grains with solubles, residues of the cereal processing industry, wheat bran, soybean hulls, citrus pulp, beet pulp, rice husks or hulls, bagasse, apple pommace, and mixtures thereof.

8 (original). The method of Claim 6, wherein the filamentous fungus is selected from the group consisting of Rhizopus, Aspergillus, Trichoderma, and any combination thereof.

9 (original). The method of Claim 6, wherein the separated enzyme is of fungal origin.

10 (original). The method of Claim 9, wherein the enyzme is a fungal protease.

11 (canceled).

12 (original). The method of Claim 6, wherein fermentation is a solid-state fermentation using the fibrous byproduct or residue as a substrate for growth of the filamentous fungus.

13 (currently amended). An enzyme-containing animal feed or feed supplement, produced by the steps of:

inoculating a fibrous byproduct or residue of a food manufacturing process with at least one filamentous fungus; and

fermenting the fibrous byproduct or residue whereby a dry matter content of the by-product or residue decreases by from about 7% to about 12%, a protein content of the by-product or residue increases by from about 10% to about 15%, and a fat content of the by-product or residue decreases by from about 40% to about 50%, and at least one enzyme of fungal origin is introduced into the fermented byproduct or residue.

14 (currently amended). A method for improving body weight gain rate of a growing animal, comprising feeding a nutritionally effective amount of an enzyme-based animal feed supplement formulated by the steps of:

inoculating a fibrous byproduct or residue of a food manufacturing process with at least one filamentous fungus;

fermenting the fibrous byproduct or residue whereby a dry matter content of the by-product or residue decreases by from about 7% to about 12%, a protein content of the by-product or residue increases by from about 10% to about 15%, and a fat content of the by-product or residue decreases by from about 40% to about 50%;

separating at least one enzyme from the fermented fibrous byproduct or residue;

dewatering the separated enzyme; and

providing the dewatered enzyme to an animal in a formulation including a suitable feed-grade carrier.

15 (original). The method of Claim 14, wherein the fibrous byproduct or residue is selected from the group consisting of spent brewer's grains, dried distiller's grains, dried distiller's solubles, distiller's dried grains with solubles, residues of the cereal processing industry, wheat bran, soybean

hulls, citrus pulp, beet pulp, rice husks or hulls, bagasse, apple pommace, and mixtures thereof.

16 (original). The method of Claim 14, wherein the filamentous fungus is selected from the group consisting of Rhizopus, Aspergillus, Trichoderma, and any combination thereof.

17 (original). The method of Claim 14, wherein the separated enzyme is of fungal origin.

18 (original). The method of Claim 17, wherein the enyzme is a fungal protease.

19 (original). The method of Claim 14, wherein the animal is selected from the group consisting of an avian, a bovine, a porcine, an equine, an ovine, a caprine, a canine, and a feline.

20 (canceled).

21 (original). The method of Claim 14, wherein fermentation is a solid-state fermentation using the fibrous byproduct or residue as a substrate for growth of the filamentous fungus.